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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,134	01/18/2006	**Oliver Ganz**	52201-0646	8101

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EXAMINER	
SNELTING, ERIN LYNN	
ART UNIT	**PAPER NUMBER**
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/565,134	GANZ ET AL.	
	Examiner	Art Unit	
	Erin Snelting	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *1-15 and 23-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-29* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 January 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01-18-2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-10, drawn to a method for producing an optical component of quartz glass.

Group II, claim(s) 11-15 and 28-29, drawn to a method for producing an optical component of quartz glass.

Group III, claim(s) 16-22, drawn to a method for producing an optical component of quartz glass.

Group IV, claim(s) 23-27, drawn to a hollow cylinder of quartz glass.

2. The inventions listed as Groups I-IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: they do not share the same technical feature as follows -

Group I has the special technical feature that the constriction is formed by softening and engaging the end of the rod against a tool to fold it inward and form a bead ring.

Group II has the special technical feature that the constriction is formed by only mechanical machining to form a collar.

Group III has the special technical feature that the constriction is formed by heating away from the end of the rod, them removing the end at the collapsing zone.

Group IV has the special technical feature that is it the product of a process to produce a constriction in the cylinder.

3. During a telephone conversation with Andrew Tiajoloff on January 21, 2009 a provisional election was made without traverse to prosecute the invention of Group III, claims 16-22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-15 and 23-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product

claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Fig. 2 does not have reference sign "**18**" as described in the specification on page 19, lines 4, 6, and 10. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 16 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roba '808 (US Patent No. 6,584,808 B1) in view of Spaapen '635 (US Patent No. 4,842,635).

10. Regarding claim 16, Roba '808 teaches:

a. elongating a coaxial arrangement of a core rod and a hollow cylinder of a predetermined length wherein the arrangement is supplied in vertical orientation to a heating zone and is softened therein zonewise, starting with a lower end thereof, and the component is draw off downwards from a softened region of the arrangement (column 9, lines 34-43, see also Figs. 1 and 2)

b. the hollow cylinder having an inner bore that is provided with a constriction in the region of its lower end on which the core rod is supported (column 7, lines 28-35, see also Figs. 1, 2, and 6)

c. the raw cylinder having a bore that is mechanically machined to a final dimension ("sleeving tube 8", column 5, line 41 has a bore that has been formed, implicitly, by some mechanical means)

d. the raw cylinder bore is heated in a collapsing zone so that the raw cylinder is collapsed in part (column 7, lines 28-35 and column 7, lines 46-48).

Roba '808 does not teach:

a. a raw cylinder is provided which is longer than the hollow cylinder to be elongated

b. the raw cylinder bore is heated in a collapsing zone *spaced apart from a front end of the raw cylinder at a distance corresponding at least to the length of the hollow cylinder* so that the raw cylinder is collapsed in part

c. the hollow cylinder is subsequently separated in the region of the collapsing zone

In analogous art of forming glass cylinders, Spaapen '635 teaches:

a. a raw cylinder is provided which is longer than the hollow cylinder (column 3, lines 31-34 and column 3, lines 53-54 - The original tube corresponds to the claimed "raw cylinder", and the two tube portions correspond to two of the claimed subsequent "hollow cylinder"s)

b. the raw cylinder bore is heating in a collapsing zone spaced apart from a front end of the raw cylinder at a distance corresponding at least to the length of the hollow cylinder so that the raw cylinder is collapsed in part (column 3, lines 28-39)

c. the hollow cylinder is subsequently separated in the region of the collapsing zone (column 3, lines 39-43, see also Figs. 1-4)

for the benefit of forming two equally usable glass cylinders with constricted end portions, via heating, from one original cylinder. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Roba '808 with the cylinder separation of Spaapen '635 for the benefit of forming two equally usable glass cylinders with constricted end portions, via heating, from one original cylinder.

11. Regarding claim 22, Roba '808 further teaches a negative pressure relative to a pressure externally applied to a cylindrical outer surface of the raw cylinder is produced in a bore therein during the collapsing (column 7, line 65-column 8, line 7).

12. Claims 17-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roba '808 (US Patent No. 6,584,808 B1) and Spaapen '635 (US Patent No. 4,842,635) in view of Fletcher '133 (US Patent Application Publication 2004/0144133 A1).

13. Regarding claim 17, Roba '808 and Spaapen '635 teach heating and partial collapsing of the raw cylinder as described for claim 16 above. Roba '808 does not teach the raw cylinder consists of at least two start cylinders connected to each other at

the front end and joined in the region of an attachment zone in the form of a joint, and wherein the step of heating and partial collapsing of the raw cylinder is carried out in the area of the attachment zone. In analogous art of optical preforms, Fletcher '133 teaches:

a. a raw cylinder consisting of at least two start cylinders connected to each other at the front end and joined in the region of an attachment zone in the form of a joint (paragraphs [0031] and [0033], see also Figs. 3 and 4)

b. the step of heating and partial collapsing of the raw cylinder is carried out in the area of the attachment zone (paragraph [0027] – note that the attachment zone is part of the final hollow preform cylinder, "tube 12", all of which is eventually subjected to heating and collapsing as described)

for the benefit of modifying the geometry of the raw cylinder, which changes the heat distribution properties of the cylinder during subsequent drawing and allows for various sizes of cylinder preforms. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Roba '808 and Spaapen '635 with the attaching of cylinders of Fletcher '133 for the benefit of modifying the geometry of the raw cylinder, which changes the heat distribution properties of the cylinder during subsequent drawing and allows for various sizes of cylinder preforms.

14. Regarding claim 18, Roba '808 does not teach at least one of the start cylinders has a reduced wall thickness in the region of the attachment zone. In analogous art of optical preforms, Fletcher '133 further teaches at least one of the start cylinders has a reduced wall thickness in the region of the attachment zone ("reverse-tapered",

paragraph [0028], see also Figs. 2, 3, and 4) for the benefit of promoting a uniform, defect-free joint when joined to another tube. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Roba '808 and Spaapen '635 with the reduced wall thickness cylinders of Fletcher '133 for the benefit of promoting a uniform, defect-free joint when joined to another tube.

15. Regarding claim 19, Roba '808 does not teach the region of reduced wall thickness is configured as a conical taper. In analogous art of optical preforms, Fletcher '133 further teaches the region of reduced wall thickness is configured as a conical taper ("this reverse-taper is consistent around the circumference of the tube 12, with an angle α", paragraph [0028], see also Fig. 2) for the benefit of minimizing the cross-sectional area of the tube portions to be joined, thereby minimizing the amount of heat required to join the tubes, thereby preventing undue deformation of the tubes of undesired chemical alteration of the tubes during joining. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Roba '808 and Spaapen '635 with the conical taper of Fletcher '133 for the benefit of minimizing the cross-sectional area of the tube portions to be joined, thereby minimizing the amount of heat required to join the tubes, thereby preventing undue deformation of the tubes of undesired chemical alteration of the tubes during joining.

16. Regarding claim 21, Roba '808 does not teach the raw cylinder has a cylindrical outer jacket which prior to heating and collapsing in the region of the collapsing zone is provided with a radially surrounding notch. In analogous art of optical preforms, Fletcher '133 teaches the raw cylinder has a cylindrical outer jacket which prior to

heating and collapsing in the region of the collapsing zone is provided with a radially surrounding notch (paragraph [0037]) for the benefit of ensuring appropriate flow characteristics and minimizing the heat required to deform the cylinder in that area. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Roba '808 and Spaapen '635 with the notch of Fletcher '133 for the benefit of ensuring appropriate flow characteristics and minimizing the heat required to deform the cylinder in that area.

17. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roba '808 (US Patent No. 6,584,808 B1) and Spaapen '635 (US Patent No. 4,842,635) in view of Shimizu '257 (US Patent Application Publication 2002/0148257).

18. Regarding claim 20, Roba '808 and Spaapen '635 teach raw cylinder, heating and collapsing as described for claim 16 above. Roba '808 further teaches the raw cylinder is softened in a vertical orientation and suspended in a heating element in the region of the collapsing zone (column 6, lines 53-63 and column 7, lines 13-35). Roba '808 teaches vertical elongation of a cylinder as described for claim 16 above, but it is referring to the drawing of the final preform, not of the raw cylinder. Roba '808 does not teach an *annular* heating element, or that the raw cylinder is elongated under the action of its own weight. In analogous art of optical preforms, Shimizu '257 teaches:

a. an annular heating element ("burner 176", paragraph [0111], and "ring burner 176", paragraph [0138], see also Figs. 5 and 19)

b. the cylinder is elongated (note that the heating and elongation are away from the end of the cylinder, as with the claimed raw cylinder) under the action of

its own weight (paragraph [0111], see also Fig. 5 – note that while an "elongation fusion chuck" is utilized, the cylinder is also inherently being elongated under the action of its own weight, because it is in a softened state in a vertical direction, thus being inherently acted upon in a longitudinal direction by gravity)

for the benefit of maintaining consistent cross-sectional geometry of the cylinder, thereby preventing distortion of the optical or mechanical properties of the preform and preventing defects in the subsequently drawn optical fiber. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Roba '808 and Spaapen '635 with the elongation and annular heating element of Shimizu '257 for the benefit of maintaining consistent cross-sectional geometry of the cylinder, thereby preventing distortion of the optical or mechanical properties of the preform and preventing defects in the subsequently drawn optical fiber.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US Patent Application 2001/0007197 A1 – Oga et al. – Figs. 1A-1F illustrate pushing a single cylinder toward itself in a softened region to form a constriction, then pulling the ends apart to form two separate cylinders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin Snelting whose telephone number is (571)272-7169. The examiner can normally be reached on Monday to Friday 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571)272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

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